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REMARKS

Present Status of Patent Application

Upon entry of the amendments in this response, claims 40-43 remain pending in the present application. Independent claim 40 has been directly amended; and the remaining claims are indirectly amended as they depend from one of the amended independent claims. These amendments are specifically described hereinafter. Support for the amendment to claim 40 is found at least in US Patent 5,586,550, which is specifically incorporated by reference at Paragraph 9 of the present Specification. The '550 patent shows the conical shape of the tapered apertures in Fig 7, and describes the tapered shape at Column 10, lines 37-46.

It is believed that the foregoing amendments and additions add no new matter to the present application, and are made to place the claims in condition for allowance.

Rejection Under 35 U.S.C. § 103(a)

Claims 40-43 were rejected under 35 USC 103(a) over *Robertson et al.*, U.S. 5,487,378 in view of *Marks et al.* U.S. 5,976,344 and/or *Abys et al.*, U.S. 5,529,055.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to *modify* the reference or to *combine* the teachings of the references. Second, there must be a reasonable *expectation* of success. Finally, the prior art reference or combined references must teach or suggest *all* the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991; emphasis added).

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See also *In re Linner* 173 USPQ 560 (CCPA 1972)

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a *convincing line of reasoning* as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972,973 (Bd.Pat.App.&Inter.1985; emphasis added).

Applicant respectfully submit the Office's burden has not been met, because there is no objective reason why one skilled in the art, when reviewing the *Robertson et al.* reference, which teaches an aerosol generator made of nickel, would be motivated to replace the material with an electroformed palladium or palladium alloy, merely because such materials are generally disclosed in the electrodeposition art (*Abys et al.* and/or *Marks et al.*)

Robertson et al. is inappropriate, either alone or in combination with *Marks et al.* and or *Abys et al.* in that *Robertson et al.* is deficient in failing to teach, disclose or suggest electroforming an aperture plate made of palladium or a palladium alloy as claimed in applicant's Independent claim 40. *Robertson et al.* discloses only nickel as a suitable material.

"A preferred nozzle array comprises an electroformed nickel foil..." Column 3, lines 40-41; and The nozzle array (50) may be fabricated from an electroformed metal or metal alloy such as nickel..." Column 11, lines 22-23.

In view of its limitation to nickel, the disclosure of *Robertson et al.*, in fact teaches away from the use of any other metal. In contrast, the palladium and alloys thereof specifically claimed by applicant offer unobvious advantages for aerosol generators in the aerosolization of medicaments.

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Independent claim 40 is allowable over *Robertson et al.* in view of *Abys et al.* and/or *Marks et al.*, since these references do not disclose or suggest electroforming an aperture plate made of palladium or a palladium alloy, and wherein the electroformed aperture plate comprises a plurality of tapered, conical-shaped apertures. Applicants respectfully submit that *Abys* provides no suggestion or motivation for electroforming palladium, let alone an aperture plate having tapered apertures.

Abys et al. merely discloses an **electroplating** method to produce surface characteristics such as corrosion resistance and bondability. Nowhere does *Abys et al.* disclose or suggest that the electroplating method could be used to electroform "a plurality of **tapered conically-shaped apertures** extending from the rear surface to the front surface" as claimed. Applicants submit that *Abys et al.* merely suggests coating a substrate to provide surface characteristics and nowhere discloses a process (e.g. forming tapered apertures.)

Electroforming is distinct from electroplating in that electroplating comprises depositing a metal on a substrate, wherein the metal essentially takes the shape of the substrate, i.e. it builds up on the substrate in a unidirectional manner. In contrast, electroforming is a specialized process of metal part **fabrication** using electrodeposition in a plating bath over a base form or mandrel which may subsequently be removed. In other words, it is a process of synthesizing a metal object by controlling the electrodeposition of metal passing through an electrolytic solution onto a metal or metallized form. Thus, a metal shape is built up, or fabricated from the plating itself. Multiple layers of electroformed metal can be molecularly bonded together, or to different substrate materials to produce complex three-dimensional structures with "grown-on" flanges and bosses.

Electroforming thus permits deposition of a metal in a biaxial manner, e.g. thus permitting shaping the metal in three dimensions, rather than two dimensions.

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Electroplating as taught by *Abys et al.* cannot be used to form tapered apertures since it is simply a method of coating a substrate to provide surface characteristics. Electroforming can be used to form tapered apertures while the electroplating method of *Abys et al.* can not. In any event, *Abys et al.* does not teach or suggest forming an aperture plate having a three-dimensional, conically-shaped tapered aperture array.

Nor does the disclosure of *Marks et al.* affect the result. *Marks et al.* is primarily concerned with providing turbulence inducing channels with outwardly flared nozzles. As such, *Marks et al.* is not concerned with “electroforming an aperture plate made of palladium or a palladium alloy, the aperture plate having a front surface and a rear surface, the palladium or palladium alloy aperture plate being electroformed to form a plurality of tapered **conically-shaped** apertures extending from the rear surface to the front surface, the plurality of apertures being tapered to narrow from the rear surface to the front surface.” *Marks et al.* provides the turbulence inducing channels at the rear surface and, furthermore, tapers the outlet nozzles outwardly rather “being tapered to narrow from the rear surface to the front surface” as claimed. Thus, to use the teachings of *Marks et al.* to provide fluid channels would not render claim 40 obvious.

For these reasons, Applicants submit that amended claim 40 is allowable over the cited references.

Moreover, with regard to any teaching obtainable by combining references, The Federal Circuit has repeatedly warned that the requisite motivation to combine references must come from the prior art, not Applicants’ specification. See *In re Dow Chem. Co. v. American Cyanamid Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531-32 (Fed. Cir. 1988) (“[t]here must be a reason or suggestion in the art...other than the knowledge learned from the applicant’s disclosure”).

Finally, claims 41-43 are dependent upon amended claim 40. If independent claim 40 is allowable over the prior art of record, then its dependent claims, are allowable as a matter of law,

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because these dependent claims contain all features/elements/steps of their respective independent claim. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Additionally and notwithstanding the foregoing reasons for the allowability of claim 40, these dependent claims recite further features/steps and/or combinations of features/steps (as is apparent by examination of the claims themselves) that are patentably distinct from the prior art of record. Hence, there are other reasons why these dependent claims are allowable.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-631-3271.

Respectfully submitted,

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